

upper eyelid, 2.5; foreleg, 20; hind leg from vent, 38; tibia, 11; inner metatarsal tubercle, 3; first toe from metatarsal tubercle, 1.5.

Quite probably the species here described is the same which Dr. W. Wolterstorff has recorded<sup>3</sup> from Tsingtao, Shantung, under the name *Callula verrucosa*. The deviations noted by him from Boulenger's description of that species tally very well with the Nanking specimen. Such an identification would also make for a more consistent geographical distribution of the two species.

In any event, Dr. Wolterstorff has done so much for the elucidation of the amphibians of eastern China, that the dedication of this new species is well merited.

ENTOMOLOGY.—*New American termites, including a new subgenus.*

THOMAS E. SNYDER, Bureau of Entomology, U. S. Department of Agriculture.

Dr. W. M. Mann, of the Bureau of Entomology, visited Guatemala, Honduras, Costa Rica, and Colombia in the winter and spring of 1924, and collected some extremely interesting termites. It is not necessary to state that Dr. Mann is a most successful collector, and has added much to our knowledge of American termites. In addition to collecting the conspicuous tree-nesting species, Dr. Mann painstakingly chopped into hard, solid wood and, in consequence, discovered some remarkable new species in the family Kalotermitidae, including a new subgenus.

From the standpoint of biology and habitat, certain species in the family Kalotermitidae, especially in the subgenera *Cryptotermes* Banks, *Glyptotermes* Froggatt, *Lobitermes* Holmgren, et al., occupy the same rôle among termites (Isoptera) as do species of Bostrichidae (l. s.) among beetles (Coleoptera); they represent the "powder-post" termites, as the latter represent the "powder-post" beetles. Many species in this group are essentially house termites and are of great, or at least of potentially great, economic importance.

Twenty species of termites, of which six are new, were found; this collecting, of course, was incidental to other work.

The new species are: (Family Kalotermitidae) *Kalotermes contracticornis* Snyder, *Kalotermes (Calcaritermes) imminens* Snyder, *Kalotermes (Calcaritermes) recessifrons* Snyder, *Kalotermes (Glyptotermes)*

<sup>3</sup> Abh. Mus. Magdeburg 1: 145, pl. 1, f. 1-2. 1906.

*suturis* Snyder, *Kaloterme*s (*Glyptoterme*s) *planus* Snyder; (Family Termitidae) *Armiterme*s (*Rhynchoterme*s) *major* Snyder.

To the descriptions of these new species there is appended a list of the previously known species of Dr. Mann's collection with a record of the localities and dates of collection, and of the castes obtained.

#### *Kaloterme*s *contracticornis*, new species

*Soldier*.—Head yellow-brown, darker anteriorly, not twice as long as broad, broader posteriorly than anteriorly, sides slightly concave in middle, epicranial suture distinct, front sloping and slightly depressed at origin, head with scattered but not numerous long hairs. Gula narrow in middle; half width at front. Eye spot hyaline, large, reniform. Mandibles black, base reddish, incurved and sharp pointed at apex, broad at base; left mandible with sharp pointed tooth near apex, a broad molar in middle, with apical tooth sharp, and another (molar) near base; right mandible with a sharp pointed tooth in middle and molar near base (Fig. 1).

Antenna yellow, with 13 or 14 segments; segments wedge-shaped, become longer and broader towards apex, not as long as width of head, with long hairs; third segment (if 14 segments) not modified, longer than fourth but shorter than second segment; fifth equal to fourth; last segment short and narrow, wedge-shaped; (if 13 segments) third segment very small, ring-like, shorter and narrower than second or fourth segments; fourth shorter than second, slightly longer and broader than fifth segment.

Pronotum dirty white, tinged with yellow, margins darker (yellow-brown), anterior margin broadly and roundly emarginate, posteriorly slightly emarginate, anterior corners high, sides roundly slope to posterior margin, with scattered long hairs.

Legs tinged light yellowish, femora swollen, but not greatly; tibia with three spines at apex.

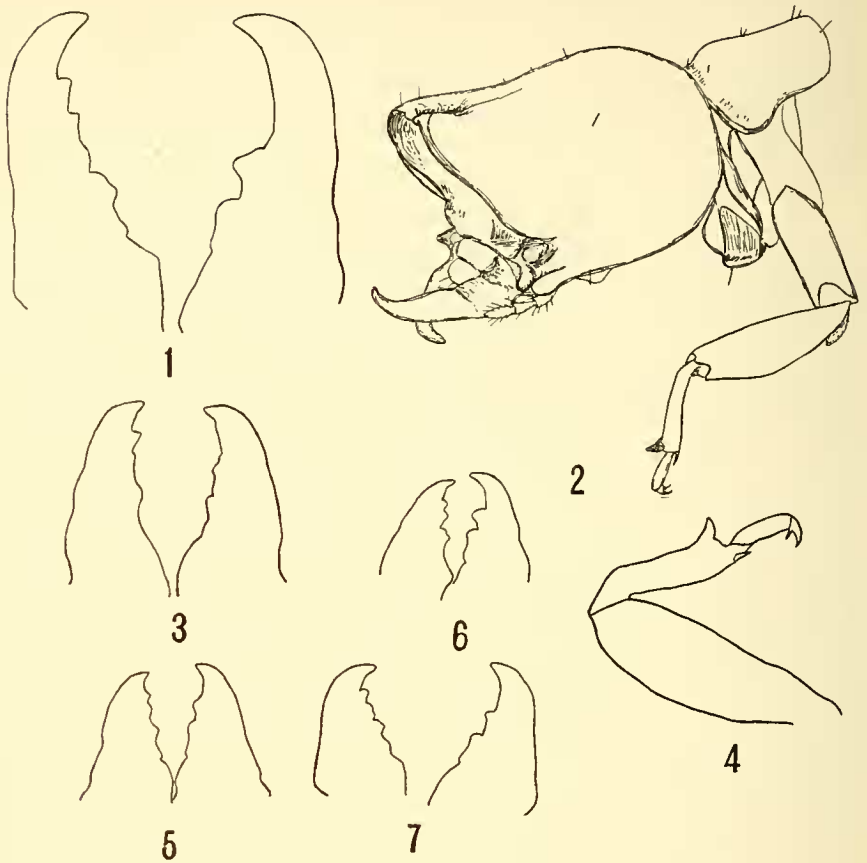
Abdomen dirty grey white, tinged with yellow, tergites with dense long hairs at base; cerci not prominent.

*Measurements*.—Entire soldier 7.5–8 mm. long; head with mandibles 4–4.3 mm. long; head without mandibles (to anterior) 2.9–3 mm. long; left mandible 1.6 mm. long; pronotum 0.8–0.9 mm. long; hind tibia 1.2 mm. long; head (anteriorly) 1.6–1.7 mm. wide, (posteriorly) 1.7–1.9 mm. wide; pronotum 1.6 mm. wide.

*Type locality*.—Navarro, Costa Rica.

Described from a series of soldiers collected with nymphs at the type locality in March, 1924, by W. M. Mann. *Type, soldier*: Cat. no. 27733, U. S. N. M.

*Kaloterme*s *contracticornis* Snyder may be the same species that N. Banks determined as *K. posticus* Hagen (from Jamaica); *posticus* was described by Hagen from the dealated adult alone; *contracticornis* is smaller than *simplicicornis* Banks, of Texas (later, also Arizona), and has less dense pubescence on the head. The marginal teeth of the mandibles are different, and the third segment of the antenna is not as much modified or relatively as large.



Views of head, pronotum, mandibles and forelegs of new species of Kalotermitidae

Fig. 1. *Kalotermes (Kalotermes) contracticornis* Snyder. Soldier; dorsal view of mandibles to show marginal teeth. Fig. 2. *Kalotermes (Calcaritermes) imminens* Snyder. Soldier; three quarters view of head, pronotum and foreleg to show overhanging, dorsal, anterior margin of head, scooped out front, and dorsal spur at apex of tibia. Fig. 3. *Kalotermes (Calcaritermes) imminens* Snyder. Soldier; dorsal view of mandibles to show marginal teeth. Fig. 4. *Kalotermes (Calcaritermes) imminens* Snyder. Soldier; view of chitinized spur on apex of tibia of foreleg. Fig. 5. *Kalotermes (Calcaritermes) recessifrons* Snyder. Soldier; dorsal view of mandibles to show marginal teeth. Fig. 6. *Kalotermes (Glyptotermes) planus* Snyder. Soldier; dorsal view of mandibles to show marginal teeth. Fig. 7. *Kalotermes (Glyptotermes) suturis* Snyder. Soldier; dorsal view of mandibles to show marginal teeth. (Fig. 2 drawn by Miss E. T. Armstrong; all other drawings made by the writer using camera lucida; all camera lucida drawings on the same scale).

**Kalotermes** Hagen, subgenus **Calcaritermes**, new subgenus

*Soldier*.—Head dark colored, fairly elongate, semicylindrical, thick, concave at middle in profile, dorsal anterior margin cleft or lobed medianly. Front of head not vertical but with oblique slope seen from the front, sometimes head with dorsal rim overhanging or projecting, more or less concave or scooped out between upper rim and postclypeus. Mandibles usually short, broad, with marginal teeth. Antenna usually with 11 segments. Forelegs with two spines at apex of tibiae and also a chitinized, elongate, thick (at base), pointed upturned, dorsal spur, femora swollen; cerci present.

*Winged adult*.—The winged form is similar to those of the subgenera *Glyptotermes* Froggatt and *Lobitermes* Holmgren; the median vein is close to and parallel to the subcosta.

*Genotype*.—*Kalotermes* (*Calcaritermes*) *imminens* Snyder from Cincinnati, Colombia; *Kalotermes* (*Calcaritermes*) *recessifrons* Snyder, from the same locality, is also included in this new subgenus, as are *Kalotermes* (*Lobitermes*) *nigriceps* Emerson, of British Guiana, *Kalotermes* (*Glyptotermes*) *emarginicollis* Snyder, *Kalotermes* (*Cryptotermes*) *bregicollis* Banks, of Panama, and *Kalotermes* (*Glyptotermes*) *corniceps* Snyder, of Porto Rica.

**Kalotermes** (*Calcaritermes*) *imminens*, new species

*Deälated, female adult*.—Head dark castaneous-brown, with reddish tinge, lighter below eyes, shining, longer than broad, slopes anteriorly at epicranial suture, with scattered, fairly elongate hairs. Eye black, markedly not round, projecting, separated from lateral margin by a distance less than the long diameter of an eye. Ocellus hyaline, white, suboval, projecting, separated from eye by a distance less than the diameter of an ocellus, set obliquely to eye.

Antenna light yellow-brown, broken (8 segments<sup>1</sup>), segments bead-like, become markedly longer and broader beyond fourth segment, with long hairs; third segment subclavate, subequal to second but longer than fourth segment.

Pronotum same color as head, anterior margin broadly and roundly emarginate, posterior margin nearly straight, anterior corners high, sides roundly slope to posterior margin, with scattered fairly long hairs.

Legs yellow with tinge of brown, elongate, slender; pulvillus present; femora swollen, tibiae with 3 elongate, chitinized spines at apex, on foreleg 1 spine longer than others, with long hairs.

Abdomen with tergites same color as pronotum, with long hairs at base of each tergite, cerci present.

*Measurements*.—Entire female, deälated adult 6.3 mm. long; head (to tip of labrum) 1.5 mm. long; pronotum 0.7 mm. long; eye (long diameter) 0.3 mm.; hind tibia 1.3 mm. long; head (at eyes) 1.35 mm. wide; pronotum: 1.1 mm. wide.

*Soldier* (Fig. 2).—Head castaneous-brown, darker anteriorly (piceous), fairly elongate, semicylindrical, thick (high), concave at middle in profile, head longer dorsally than ventrally, with an overhanging, projecting upper rim, which is cleft or lobed medianly, but the lobes touch (no opening between except at anterior margin), anterior margin of rim roughened. Head with scattered long hairs. Front of head not vertical but with oblique slope

<sup>1</sup> Nymph of sexual form with 13 segments to antenna.

ventrally and towards posterior margin; seen from the front, deeply scooped out, concave like a socket between upper rim and post clypeus. Eye spot dark, not distinct, in depression with antennal socket.

Mandibles piceous, short, broad, with marginal teeth as figured (Fig. 3).

Antenna white, with yellowish tinge, short, with 11 or 12 segments; segments become broader and longer towards apex, with long hairs; third segment (if 11 segments) narrow, short, subclavate, shorter and narrower than second or fourth segments; fourth shorter than second; remaining segments wedge-shaped; last segment narrower, suboval; (if 12 segments) third segment ring-like, very small; fourth much shorter than second or fifth segments.

Pronotum same color as head, not quite as broad as head, anterior margin broadly but angularly emarginate, nearly straight, the posterior margin more roundly but broadly emarginate; sides gradually slope to posterior margin; with scattered long hairs.

Legs white, tinged with yellow, femora swollen, fore tibiae with 2 spines at apex and also a chitinized, elongate, thick, (at base) upturned, pointed dorsal spur, with long and short hairs. (Fig. 4.)

Abdomen grey white, tinged with yellow, with long hairs; cerci present, fairly elongate.

*Measurements*.—Entire soldier 5.7–6.2 mm. long; head with mandibles 2.1–2.25 mm. long; head to anterior without mandibles (dorsally) 1.7–1.85 mm. long; head to anterior without mandibles (ventrally): 1.55–1.6 mm. long; left mandible 1 mm. long; pronotum 0.8–0.85 mm. long; hind tibia 0.7–0.8 mm. long; head anteriorly 1.4–1.45 mm. high; head posteriorly 1.25–1.3 mm. high; head 1.4–1.5 mm. wide; pronotum 1.4–1.45 mm. wide.

*Type locality*.—Cincinnati, Colombia.

Described from a series of soldiers collected with nymphs and a dealated adult at the type locality, in February, 1924, by Dr. W. M. Mann. *Type, soldier*: Cat. no. 27734, U. S. N. M.; morphotype, dealated female, adult.

*Kalotermes (C.) imminens* Snyder differs from all other known species in nearly related subgenera, and, in view of the overhanging dorsal rim of the head and dorsal spur on the tibia of the forelegs, it was deemed advisable to erect a new subgenus for this species. The specific name refers to the overhanging rim of the head, the subgeneric name to the tibial spur, which does not occur in species of other subgenera of *Kalotermes*.

#### ***Kalotermes (Calcaritermes) recessifrons*, new species**

*Winged adult*.—Head dark castaneous-brown, with reddish tinge, lighter below the eyes, shining, longer than broad, sides parallel, rounded posteriorly, with scattered long hairs. Eye black, not round, projecting, separated from lateral margin of head by a distance less than the long diameter of an eye; ocellus hyaline, small, projecting, suboval, nearly touching eye.

Antennae brown, with 13 segments, segments becoming longer and broader towards apex, with long hairs; third segment subclavate, longer than fourth but shorter than second segment; fifth longer than fourth; segments become wedge-shaped towards apex; last segment elongate and subelliptical.

Pronotum same color as head, anterior margin broadly, angularly emarginate, posterior margin nearly straight, sides gradually and roundly slope to posterior margin, not much narrowed posteriorly, with scattered long hairs.

Wings dusky brown, costal veins darker, membrane coarsely punctate; fore wing with median vein close to and parallel to subcostal vein, cubitus in about middle of wing, branches to apex of wing, with sub-branches to lower margin.

Legs light yellow-brown, femora darker dorsally, with 3 elongate spines at apex of tibiae, pulvillus present, pubescent.

Abdomen dark castaneous-brown, with long hairs, cerci present, but not prominent.

*Measurements.*—Entire winged adult 8–8.25 mm. long; entire dealated adult 4.6–5.3 mm. long; head (to tip labrum) 1.2 mm. long; pronotum 0.7 mm. long; hind tibia 0.9 mm. long; fore wing 6 mm. long; eye (long diameter) 0.275 mm.; head (at eyes) 1 mm. wide; pronotum 0.95 mm. wide; fore wing 1.65 mm. wide.

*Soldier.*—Head castaneous-brown, darker anteriorly (piceous), fairly elongate, semicylindrical, thick, concave in the middle in profile, head longer ventrally than dorsally, front of head not vertical, sloped anteriorly, ventrally, seen from the front more or less shallowly concave, margin of frontal area not strongly developed, with but only slight outlines of a rim, anterior margin slightly roughened, head lobed medianly at anterior margin (a broad V-shaped, shallow, lobe), head with few, scattered, long and short hairs. Eye spot hyaline, suboval, prominent, separated from antennal socket by a distance greater than its long diameter, long diameter of eye spot parallel to rim of antennal socket. Gula broadest at middle.

Labrum yellow, broader than long, tongue-shaped, with long hairs.

Mandibles piceous, short, broad, with marginal teeth as figured (Fig. 5).

Antenna white, tinged with yellow, short, with 11 segments, the segments become broader and longer towards apex, with long hairs; third segment short, ring-like, shorter and narrower than second or fourth segments; fourth ring-like, short, shorter than second or fifth segments and only slightly longer than third; last segment elongate, narrow, subelliptical.

Pronotum same color as head, not as broad as head, anterior and posterior margins broadly, round-emarginate, anterior corners high, sides nearly straight, with scattered long hairs.

Presternal process dark, (castaneous).

Legs white, tinged with yellow; femora swollen, fore tibiae with 2 spines at apex and also a chitinized, elongate, thick (at base), upturned, pointed dorsal spur, with long and short hairs.

Abdomen gray-white, tinged with yellow, with long hairs; cerci present.

*Measurements.*—Entire soldier 4.6 mm. long; head with mandibles 2 mm. long; head to anterior without mandibles (dorsally) 1.3 mm. long; head to anterior without mandibles (ventrally) 1.7 mm. long; left mandible 0.7 mm long; pronotum 0.7 mm. long; hind tibia 0.6 mm. long; head 0.9 mm. high; head anteriorly 1.2 mm. wide; head posteriorly 1.3 mm. wide; pronotum 1.25 mm. wide.

*Type locality.*—Cincinnati, Colombia.

Described from a single soldier, collected with a series of winged adults, at the type locality by W. M. Mann in February, 1924. *Type, soldier:* Cat. no. 27735, U. S. N. M.; morphotype, winged adult.

### **Kaloterme** Hagen, subgenus *Glyptoterme* Froggatt

*Winged adult.*—The wing venation is very characteristic, the median vein runs parallel and close to the subcostal vein and there are no cross branches; the antennae have 13 segments.

*Soldier*.—The head is more or less elongate, the front is steeply oblique and often somewhat scooped out or concave and lobed; the antennae usually have 10 to 12 segments; the mandibles are relatively short and broad.

The subgenus *Lobitermes* Holmgren is closely related to *Glyptotermes*; the winged adult is as in *Glyptotermes*. The soldier of species of *Lobitermes* has the head deeply lobed, relatively short, thickly cylindrical, and with the front nearly vertical. The head is shorter and darker colored (blackier) than in *Glyptotermes*, and the antennae have more segments (11 to 14). The mandibles are short, and are hardly visible from above.

***Kalotermes* (*Glyptotermes*) *planus*, new species**

*Winged, female adult*.—Head deep castaneous-brown, with reddish tinge, lighter below eyes, longer than broad, with scattered long hairs. Eyes black, not round, slightly projecting, separated from lateral margin of head by a distance less than long diameter of eye. Ocelli hyaline, sub-oval, projecting, close and at oblique angle to eyes.

Antennae yellow-brown, 11 segments, segments bead-like, becoming very much longer and broader towards apex, with long hairs; third segment subclavate, short and narrow, shorter than second or fourth segments; fourth segment shorter than second segment; fifth longer and broader than fourth segment; last segment slender, elongate, subelliptical, with truncate apex.

Pronotum same color as head, anterior margin broadly angularly emarginate, posterior margin nearly straight, anterior corners high, sides roundly slope to posterior, with scattered long hairs.

Wings dusky, smoky, costal area darker (brown), tissue coarsely punctate; median vein close to and parallel to subcosta; cubitus nearly in center of wing, slightly nearer to median vein than to lower margin of wing, branching to apex of wing.

Legs yellow, elongate, slender, pulvillus present, pubescent.

Abdomen with tergites the same color as pronotum, with long hairs; cerci present.

*Measurements*.—Entire winged adult 6.7 mm. long; entire deälated adult 4.8 mm. long; head (to tip labrum) 1 mm. long; pronotum 0.5 mm. long; fore wing 5.15 mm. long; hind tibia 0.7 mm. long; eye (long diameter) 0.235 mm.; head (at eyes) 0.80 mm. wide; pronotum 0.75 mm. wide; fore wing 1.35 mm. wide.

*Soldier*.—Head yellow, darker anteriorly (light yellow-brown to light castaneous-brown, with a reddish tinge), paler posteriorly, in profile head in nearly a straight line, not high, front slopes obliquely, anteriorly, with broad rounded median suture, lobes but very little elevated, slightly roughened, with scattered fairly long hairs (a row of longer hairs both anteriorly and posteriorly).

Eye spot not distinct, suboval, close to rim of antennal socket.

Gula narrower in middle.

Mandibles reddish-brown at base, piceous at apex, short and broad, marginal teeth as figured (Fig. 6).

Antennae white, tinged with yellow, 10 segments, segments wedge-shaped, becoming longer and broader towards apex, with long hairs; third segment subclavate, narrower and shorter than second or fourth segments; fourth segment only slightly longer than third but quite a little shorter than second;

fifth longer and broader than fourth segment; last segment short, narrow, wedge-shaped.

Pronotum yellow, darker, light yellow-brown on margins, anterior margin broadly angularly emarginate, posterior margin slightly convex, nearly straight, slight median emargination, anterior corners high, sides narrowed (angularly slope) posteriorly, with scattered long hairs.

Presternal processes light yellow-brown.

Legs light yellow, femora swollen, tibiae with three chitinized apical spines, with long hairs.

Abdomen with tergites gray-white with yellowish tinge, with long hairs, cerci present.

*Measurements.*—Entire soldier 4.8–4.9 mm. long; head with mandibles 1.7–1.85 mm. long; head to anterior without mandibles (dorsally) 1.1 mm. long; head to anterior without mandibles (ventrally) 1.25 mm. long; left mandible 0.65 mm. long; pronotum 0.45 mm. long; hind tibia 0.5 mm. long; head 0.8 mm. high; head anteriorly 0.8 mm. wide; head posteriorly 0.9 mm. wide; pronotum 0.85–0.9 mm. wide.

*Type locality.*—Colombiana, Costa Rica.

Described from three soldiers collected with two winged female adults and nymphs at the type locality in April, 1924, by W. M. Mann. *Type, soldier:* Cat. no. 27736, U. S. N. M.; morphotype, winged female adult.

The soldier of *K. (G.) planus* Snyder has a light colored head, with anterior lobes not prominent; winged adult with only 11 segments to antennae and small eyes.

#### *Kalotermes (Glyptotermes) suturis* new species

*Winged female adult.*—Head light castaneous-brown with a reddish tinge, darker on vertex, lighter below the eyes, not much longer than broad front with an oblique slope anteriorly, with scattered long hairs. Eyes black, not round, projecting, separated from lateral margin of head by a distance less than an eye diameter. Ocelli hyaline, suboval, projecting, almost touching and at an oblique angle to eyes.

Antennae light yellow-brown, (broken 8 segments), segments bead-like, become longer and broader towards apex, with long hairs; third segment subclavate, narrow, slightly longer than fourth but slightly shorter than second segment; fifth longer and broader than fourth segment.

Pronotum slightly darker than head, anterior margin broadly angularly emarginate, posterior margin slightly and shallowly, roundly emarginate, anterior corners high, sides roundly slope posteriorly, with scattered long hairs.

Wings dusky, smoky brown, costal area darker (brown), coarsely punctate; in fore wing, median vein close to and parallel to subcosta, cubitus nearly in center of wing, slightly closer to median vein than to lower margin of wing, branching to apex of wing.

Legs light yellow-brown, elongate, slender, pulvillus present, pubescent.

Abdomen with tergites about same color as pronotum, with long hairs at base; cerci present, not prominent.

*Measurements.*—Entire winged adult 7.8 mm. long; entire deälated adult 6.3 mm. long; head (to tip labrum) 1.3 mm. long; pronotum 0.6 mm. long; fore wing 6 mm. long; hind tibia 1 mm. long; eye (long diameter) 0.275 mm. head (at eyes) 1.2 mm. wide; pronotum 1 mm. wide; fore wing 1.7 mm. wide.

*Soldier.*—Head light yellow, darker (yellow-brown) anteriorly, longer than broad, slightly broader posteriorly, sides approximately parallel, slightly



concave anteriorly in profile, front obliquely, angularly sloping anteriorly, broad, rounded suture medianly, margins of lobes rounded, not roughened, lobes slightly elevated, head with scattered long hairs. Eye spot hyaline, elongate long diameter parallel to rim of antennal socket, separated from antennal socket by a distance equal to the long diameter of the eye spot. Gula elongate, narrow at middle. Labrum light yellow, broader than long, tongue-shaped, with long hairs.

Mandibles reddish brown to piceous at apex, short and broad; marginal teeth as figured (Fig. 7).

Antennae light yellow, 10 segments, segments become longer and broader (wedge-shaped) towards apex, with long hairs; third segment short, subclavate, shorter than second but slightly longer than fourth segment; fourth ring-like, only slightly shorter than third segment but much shorter than second; fifth longer than fourth segment; last segment narrower, wedge-shaped.

Pronotum yellow, margins light yellow-brown, broadly shallowly roundly emarginate at anterior margin, posterior margin nearly straight, sides angularly slope posteriorly, anterior corners high, with scattered, long hairs.

Presternal processes light yellow-brown.

Legs white tinged with yellow, femora swollen, tibiae with 3 chitinized elongate spines at apex, with scattered, long hairs.

Abdomen gray-white, tinged with yellow, with long hairs; cerci present.

*Measurements*.—Entire soldier 5 mm. long; head with mandibles 2.25 mm. long; head to anterior without mandibles (dorsally) 1.35 mm. long; head to anterior without mandibles (ventrally) 1.5 mm. long; left mandible 0.8 mm. long; pronotum 0.55 mm. long; hind tibia 0.7 mm. long; head 0.95 mm. high; head anteriorly 1.05 mm. wide; head posteriorly 1.15 mm. wide; pronotum 1 mm. wide.

*Type locality*.—La Carpentera, Costa Rica.

Described from a single soldier collected with a winged female adult and nymphs at the type locality in April, 1924, by W. M. Mann. *Type, soldier*.—Cat no. 27737, U. S. N. M.; morphotype, female winged adult.

The soldier of *K. (G.) suturis* Snyder has a light-colored head, with a rounded suture at the front of the head, the lobes being slightly elevated and rounded.

#### *Armitermes (Rhynchotermes) major*, new species

*Soldier*.—Head light castaneous-brown, middle of beak or nasus and mandibles darker, reddish-brown (to piceous), head relatively short, pear-shaped (with base of nasus), otherwise round, nasus very elongate, curved downward, becoming gradually attenuated towards apex, where there are short hairs, 1 row short hairs on head anteriorly. Mandibles relatively very short, bent inwards or hook-shaped, inner margin near tips not crenulate, near center of each mandible a long outward curved, sharp, pointed marginal tooth.

Antenna yellow-brown, elongate, slender (with 14 elongate segments), with long hairs; third segment subclavate, longer than first, longer than second or fourth; fourth segment longer than second; fifth segment longer than fourth; segments gradually becoming shorter but broader towards apex; last segment subelliptical.

Pronotum light-brown, darker on margins, saddle-shaped, broader than long, high and roundedly narrow at anterior margin, where emarginate, broadly rounded posteriorly; long hairs on anterior margin.

Legs yellow, with tinge of brown, elongate, with scattered long, but sparse hairs; coxae of fore legs with an elongate point or sharp process, sometimes hook-shaped and curving; two spines at apex of tibia.

Abdomen dirty gray-white, with tinge of yellow (to yellow-brown), with row of long hairs at base of each tergite.

*Measurements.*—Entire soldier 5.5–6 mm. long; head with nasus 3–3.2 mm. long; head with mandibles 1.8 mm. long; head to anterior 1.2 mm. long; nasus 1.9 mm. long; left mandible 1.2 mm. long; pronotum 0.4 mm. long; hind tibia 1.85–2 mm. long; head (at widest portion) 1.15–1.25 mm. wide; pronotum 0.7 mm. wide.

The soldier of *A. (R.) major* Snyder is darker colored, larger than *nasutissimus* Silvestri, it has a longer, more aquiline head and nasus, longer mandibles, and long, pointed marginal teeth, the antennae have longer segments, the process on the coxae is longer and more pointed; in comparison with *perarmatus* Snyder, *major* is slightly darker colored and is consistently larger.

*Worker.*—The head of the worker is light castaneous-brown, with scattered long hairs, with prominent, hyaline, round, raised fontanelle (larger than in *perarmatus*), it is darker colored and larger than the worker of *nasutissimus* or *perarmatus*; antennae with 14 segments; post-clypeus about same color as head, bulging, bilobed.

*Measurements.*—Entire worker 4.7–5.3 mm. long; head 1.7 mm. long; pronotum 0.45 mm. long; hind tibia 1.7 mm. long; head tibia 1.7 mm. long; head 1.4 mm. wide; pronotum 0.7 mm. wide.

The winged adult is unknown.

*Type locality.*—Estrella, Costa Rica.

Described from a large series of soldiers and workers collected in April, 1924, at the type locality by Dr. W. M. Mann. *Type, soldier.* Cat. no. 27738, U. S. N. M.

Dr. Mann also found specimens of the termite at Sangrelaya, Honduras, in May, 1924, under the bark of a decayed log. I previously referred these specimens to the species *perarmatus* Snyder, from Panama, but this additional material shows a large series which are of constantly larger size and are hence referred to the species *major* Snyder.

#### LIST OF DESCRIBED SPECIES

##### KALOTERMITIDAE

###### KALOTERMES (KALOTERMES) TUBERCULIFRONS Snyder

GUATEMALA, Antigua (El Potrero, Finca Vic, three soldiers, collected by J. R. Slevin). These soldiers were compared with the type from Mexico; the antennae of the type were broken off at the fourth segment, but the soldiers from Antigua have 13 segments to the antennae; the head is slightly broader anteriorly in the type, whereas in these specimens the head is broader posteriorly, the eye spot is darker and smaller, and the femora more swollen, than in the type.

##### RHINOTERMITIDAE

###### LEUCOTERMES TENUIS Hagen

COLOMBIA: Rio Frio, Feb., 1924 (soldiers and workers with *Termitaphis* sp.) Rio Frio, Feb., 1924 (soldiers with *Microcerotermes exiguus* Hagen, queens, soldiers and workers).

## PRORHINOTERMES MOLINOI Snyder

COSTA RICA: Zent, March, 1924 (soldiers and workers with soldiers and workers of *Coptotermes niger* Snyder).

## COPTOTERMES NIGER Snyder

GUATEMALA: Mixco, May, 1924 (soldiers and workers).

COSTA RICA: Zent, March, 1924 (soldiers and workers with *Prorhinotermes molinoi* Snyder, soldiers and workers).

COLOMBIA: Rio Frio, Feb., 1924 (soldiers and workers).

## TERMITIDAE

## AMITERMES MEDIUS Banks

COLOMBIA: Rio Frio, Feb., 1924 (soldiers, workers and nymphs). Santa Ana, Feb., 1924 (soldiers, workers and nymphs).

CORNITERMES (*Cornitermes*) ACIGNATHUS Silvestri

COSTA RICA: Colombiana, April, 1924 (soldiers and workers).

NASUTITERMES (*Nasutitermes*) CORNIGERA Motschulsky

GUATEMALA: Mixco, May, 1924 (queen, king, soldiers and workers).

HONDURAS: Sangrelaya, March, 1924 (queen, king, soldiers and workers).

Sangrelaya, March, 1924 (queens, kings, soldiers and workers).

Malva, May, 1924 (queens, kings, soldiers and workers).

COSTA RICA: Colombiana, March, 1924 (queen, soldiers and workers).

El Coyolar, March, 1924 (queen, soldiers and workers). Zent, March,

April, 1924 (queen, soldiers and workers). Estrella, April, 1924 (queen

soldiers and workers). San Mateo, April, 1924 (queen, king, winged adults, soldiers and workers).

NASUTITERMES (*Nasutitermes*) EPHRATAE Holmgren

HONDURAS: Sangrelaya, May, 1924 (3 queens, winged adults, soldiers and workers in ball nest—outer shell 2" thick and very hard). Sangrelaya, May, 1924 (queen, soldiers and workers).

COSTA RICA: Colombiana, March, 1924 (queen, soldiers and workers in nest on ground). Colombiana, April, 1924 (winged adults, soldiers and workers).

NASUTITERMES (*Nasutitermes*) ROTUNDATUS Holmgren

COSTA RICA: Colombiana, April, 1924 (soldiers and workers).

NASUTITERMES (*Tenuirostritermes*) TENUIROSTRIS Desneux

GUATEMALA: Antigua, May, 1924 (soldiers and workers). Palin, May, 1924 (soldiers and workers).

ANOPLOTERMES (*Anoplotermes*) sp.

COSTA RICA: El Coyolar, April, 1924 (workers and nymphs).

ANOPLOTERMES (*Speculitermes*) sp.

COLOMBIA: Rio Frio, Feb., 1924 (workers marching from nests in files, cutting leaves and carrying cut pieces).

## MICROCEROTERMES ARBOREUS Emerson

HONDURAS: Ceiba, April, 1924 (queens, winged adults, soldiers and workers).

## MICROCEROTERMES EXIGUUS Hagen

GUATEMALA: Esquintla, May, 1924 (queen, soldiers and workers).

COLOMBIA: Rio Frio, Feb., 1924 (queen, soldiers and workers). Rio Frio, March, 1924 (queens, soldiers and workers with soldiers of *Leucotermes tenuis* Hagen).